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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,661	10/20/2003	Kiran Vadgama	58418-3	3920
23971 7590 01/24/2008 BENNETT JONES C/O MS ROSEANN CALDWELL 4500 BANKERS HALL EAST 855 - 2ND STREET, SW CALGARY, AB T2P 4K7 CANADA			EXAMINER GAKH, YELENA G	
			ART UNIT 1797	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/687,661

Applicant(s)

VADGAMA ET AL.

Examiner

Yelena G. Gakh, Ph.D.

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) 7-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☒ Claim(s) 4-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Amendment filed on 11/16/07 is acknowledged. Claim 2 is cancelled. Claims 1 and 3-6 are considered on merits.

### *Response to Amendment*

2. In response to amendment the examiner withdraws objection to Figure 5. Objection to the specification is sustained. The rejection of the pending claims over the prior art is withdrawn and the rejection over enablement requirements is established in light of the amendment.

### *Specification*

3. The specification is objected to as containing the subject matter that is not disclosed in "full, clear, concise, and exact terms".

In particular, in "Summary of the Invention" the expression "at least one measurement device configured to measure density and capacitance of the emulsion within the conduit to generate a density value and a capacitance value" (page 5) is unclear. Is this just one measurement device that can measure both parameters, i.e. capacitance and density? What type of device this can be? The examiner is not aware of any of such devices. Moreover, such disclosure contradicts the "Detailed Description of the Invention", which reads: "*the capacitance measuring device* may be calibrated according to linear data regarding the refractive index of an emulsion of oil and water to provide output. The output of the capacitance device may be used to obtain a refractive index of the emulsion. *The density measuring device* may be used to measure the density of the emulsion from which the actual density of oil may be obtained. **The density oil may then be applied to a linear curve** [*sic*, see further] with the value of the refractive index of the oil and from this measurement the water content of the emulsion may be obtained" (page 8). Thus, the Detailed Description of the Invention obviously discloses two separate devices for measuring capacitance and density. The examiner failed to find a description of a single device, which would be capable of measuring both parameters simultaneously. Also, the illustrating diagram of the apparatus (Figure 1) clearly shows two separate devices and the specification has the following description: "a capacitance measuring device 12 may provide a means of

measuring the capacitance of the fluid flowing through the conduit 10. A density measuring device 14 may measure the density of the fluid flowing through the conduit 10" (page 9).

Regarding the essence of the invention, the disclosure is rather confusing.

From page 8 it is not apparent, as to what the expression, "the capacitance measuring device may be calibrated according to linear data regarding the refractive index of an emulsion of oil and water to provide output", might mean. The expression is not clear. Further, it is not clear, how "the output of the capacitance device may be used to obtain a refractive index of the emulsion", if previously the disclosure stated that there should be two parameters measured to obtain refractive index - capacitance and density? The expression "the density oil may then be applied to a linear curve with the value of the refractive index of the oil" does not make any sense. Should it be "the density of oil"? How can the "density oil" be applied to the curve?

Also, from the next paragraph it is not clear, which specifically "at least one device calibration value" is obtained from density and capacitance values.

The following excerpt on page 8 is unclear:

"One embodiment involves an iterative process to derive values required to determine a water fraction value. This method of deriving values involves multiple determinations of a **value**. Each determination being compared to a **second value**. If the determined and the second value are not within a predetermined variable range then the iterative process may continue until a determined value within the range is derived. The application of an iterative process may allow for a more accurate water fraction value to be derived than non-iterative processes" (page 8).

The examiner does not know how to properly interpret this paragraph. Which value is meant here? What is the second value? How can the values be determined in an iterative process, if they are obtained by one time measurement? Iterative process usually means changing something in steps. What specifically is changed here in steps?

In the following excerpt "two values for each of the density, temperature and capacitance measurements" are indicated. Which two values? Why there are two values for each measurement?

It is further unclear, whether all equations provided by the Applicants are well known in the art. Furthermore, such terms as the "composite instrument factor CIF" that depends on the type and the installation of the probe, as indicated on page 14, and which is included in the

equations (pages 13 and 14), are not adequately disclosed in the specification, and therefore will not be clear for a routineer in the art.

It appears that the specification discloses multiple calibration procedures for the devices for measurements of capacitance and density, with further utilization of calibration factors for obtaining water content. Also, it appears that the apparatus correction factors are taken into account. However, the subject matter of the invention is disclosed in a very unclear and confusing way. The examiner respectfully invites the Applicants for a telephone interview for clarification of the essence of the invention.

#### ***Claim Objections***

4. Claims 4, 5 and 6 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 4 recites "wherein the conduit is pipe for conveying oil at a storage facility" and claim 5 recites "wherein the conduit comprises a pipe extended between a truck and a holding tank"; however, since the terms "pipe" and "conduit" are synonyms, and "a storage facility", "a truck" and "a holding tank" are not the parts of the claims, it does not appear that claims 4 and 5 recite any further structural limitations to the apparatus of claim 1; the second part of claim 5 is a method step, which is not relevant to the subject matter of the elected set of claims.

Claim 6 recites a device configured to determine a capacitance value. Claim 1 already recites a measurement device to measure capacitance, and therefore the recitation of claim 6 does not further limit the subject matter of claim 1.

#### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 3-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, the disclosure does not disclose "a computing device being configured of determining the content of water in the emulsion through the application of a refractive index in relation to the capacitance value and the density value". It appears from the disclosure that "determination of the content of water in the emulsion through the application of a refractive index in relation to the capacitance value and the density value" is a complex multistep process, comprising several calibration techniques based on measuring oils with different densities and on taking into account complex device factors; it comprises performing a series of calculations separated in time. It would have been an undue experimentation for a routineer in the art to configure a computing device for "determining the content of water in the emulsion through the application of a refractive index in relation to the capacitance value and the density value", as recited in the claims, without a detailed description of the algorithm for performing such determination, which is not disclosed in the specification.

Furthermore, the specification does not reasonably provide enablement for the apparatus, which comprises only one device for measuring capacitance and density. There is no way for a person of ordinary skill in the art to measure capacitance and density of the emulsion with the same device, since these are totally different physical parameters of a material, one of which is related to electrical properties of the material, and the other one - to its composition. The specification does not provide any disclosure for the device which is capable of measuring both of these two parameters. Therefore "at least two devices" should be recited in the claims.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "at least one measurement device configured to measure density and capacitance of the emulsion within the conduit to generate a density value and a capacitance value". The expression is not clear, as was indicated above in the objection to the specification. The specification in the Detailed Description discloses separate devices for measuring density and capacitance. Claim further recites "a computer device configured for ...". More conventional terminology for this expression would be "computer programmed to". It is not apparent, as to which other "computer device", besides computer itself, the claim might recite. Also, computers are usually programmed for performing specific algorithmic operations. "Computer configuration" is related to its hardware, which to the examiner's understanding is not the subject matter of the pending claims. If the expression "computer is configured for" is related to its hardware parts, then it is not apparent, as to which configuration is recited in the claim. The language of the claim is still unclear and indefinite.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1 and 3-6 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yelena G. Gakh, Ph.D. whose telephone number is (571) 272-1257. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yelena G. Gakh/  
Primary Examiner, AU 1797

1/08/08